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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,520	01/17/2002	James E. Rothman	11746/46004	3143

20583 7590 06/29/2005

JONES DAY
222 EAST 41ST ST
NEW YORK, NY 10017

EXAMINER	
BASI, NIRMAL SINGH	
ART UNIT	**PAPER NUMBER**
1646	

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/053,520	ROTHMAN ET AL.	
	Examiner	Art Unit	
	Nirmal S. Basi	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18,28 and 31-91* is/are pending in the application.

4a) Of the above claim(s) *32 and 34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *18,28,31,33 and 35-91* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 December 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

5:00

DETAILED ACTION

1. Amendments filed 4/6/05, 10/1/02 have been entered.

2. Drawing filed 12/9/02 are approved by the Examiner.

3. Applicant's election with traverse of Group II (Claims 16-18, and 28-30) on 4/6/05, is acknowledged. The traversal is on the ground(s) that claims 1-15 and 19-27 were cancelled in the amendment filed 1/17/02. Applicants' arguments have been fully considered and are found persuasive. Applicant has cancelled claims 29-30 and added new claims 31-91. Claims 18, 28, 31, 33 and 35-91 drawn to a method of inducing an immune response in a subject comprising administering conjugate peptide comprising a tether and an antigenic peptide, classified in class 424, subclass 9.34 will be examined. Newly added claims 32 and 34 will not be examined because they pertain to a non-elected invention. Newly added claims are drawn to method of inducing an immune response in a subject comprising administering a composition comprising a nucleic acid expression vector encoding a conjugate peptide. The methods of claims 32 and 34 classified in class 435 subclass 69.1 pertain to a distinct method. The methods are distinct because they are independent using separate method steps, active agents and having different effects. The newly added claims use a nucleic acid to induce the immune response whereas the elected invention uses a polypeptide. A search for the use of nucleic acids in the method claimed would not be co-extensive with the elected group, particularly with regard to the literature search, and would constitute a serious undue burden on

the examiner. The requirement is still deemed proper and is therefore made FINAL.. Claims 32 and 34 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

The requirement is still deemed proper and is therefore made FINAL.

Objections

4. Claims 35, 41, 50, 51, 58, 59, 72-77, 86-87, 90-91 are objected to because they read on non-elected invention drawn to method of inducing an immune response in a subject comprising administering a composition comprising a nucleic acid expression vector encoding a conjugate peptide. Applicant must amend or withdraw the claims directed to non-elected invention.

5. Claims 59, 61, 63, 65, 67, 69 and 71 fail to comply with the sequence rules, 37 CFR 1.821-1.825. Nucleotide and polypeptide sequences must be identified with the corresponding SEQ ID NO. Title 37, Code of Federal Regulations, Section 1.821 states reference must be made to the sequence by use of the assigned identifier, the identifier being SEQ ID NO. All sequences in the claims must be identified by their corresponding SEQ ID NO:. Correction is required.

Claim Rejections - 35 USC § 112, second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 18, 28, 31, 33 and 35-91 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 is indefinite because the method steps do not disclose when the goal of the method is achieved, i.e. immune response is induced. An acceptable method claim must contain three sections: 1) a preamble, 2) method steps that clearly define what is to be done in each step, and 3) a conclusion that what was stated in the preamble was achieved (the method does not contain a statement how and when the goal of the claim is achieved). Claims 28, 31 and 88 are rejected for the same reasons as given above.

Claims 18 and 31 are indefinite because it is not clear what conditions are considered "physiologic" so as to allow the metes and bounds of the claim to be determined.

Claims 45, 46, 48 and 49, are indefinite because it is not clear what is implied by sensitive so as to allow the metes and bounds of the claim to be determined. If Applicant is implying that that said linkers can be leaved by a cellular enzyme, acid, base, light, reduction, oxidation then that implication must be stated clearly.

Claim 74 is indefinite because it is not clear when a composition is substantially free of adjuvant as compared not substantially free of adjuvant so as to allow the metes and bounds of the claim to be determined.

Claim 77 is indefinite because it is not clear when an antigen is considered associated with a pathogen as compared to when it is considered not associated

so as to allow the metes and bounds of the claim to be determined. For example does associated mean responsible for pathogenicity?

Claim 76 is indefinite because it is not clear when an antigen is considered associated with a neoplasia as compared to when it is considered not associated so as to allow the metes and bounds of the claim to be determined. For example does associated mean responsible for neoplasia?

Claim 91 is indefinite because analogs and derivative are not clearly defined so as to allow the metes and bounds of the claim be determined. The terms analog and derivative carry no weight in terms of structure and function and encompasses an unlimited number of alterations and reads on unrelated molecules.

Claims 33, 35-44, 47, 50-73, 75, 78-90 are rejected for depending on an indefinite base claim.

Claim Rejections - 35 USC 112, 1st paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 18, 28, 31, 33 and 35-91 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of inducing an immune response comprising administering a conjugate peptide comprising the hsp70 plus OVA-BiP peptide construct disclosed in the specification, , does not reasonably provide enablement for the use of other constructs The, specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The invention of instant application relates to the use of conjugate peptides that bind to heat shock proteins and provoke an immune response. The specification discloses the buffer concentration and the presence and absence of herbimycin alter the peptides bound to gp96. There is no disclosure in the specification regarding provoking an immune response using conjugates isolated from gp96. Further disclosed is hp70/ova-BiP construct can induce an immune response. The instant disclosure of an hp70/ova-BiP construct that can induce immune response does not adequately enable the scope of the claimed genus, which encompasses a substantial variety of subgenera including constructs which encompass proteins/non-proteins which bind "heat shock protein" (including homologs thereof expressed constitutively, including, but not limited to gp96, hsp90, biP, hsp70, hsp60, hsp40, hsc70 and hsp10. The tether that binds the heat shock protein (hsp) is not defined by structure. The critical feature defining what sequences of polypeptide that will bind to the hsp and be effective

as immuno-modulators are not disclosed. A description of a genus of conjugates may be achieved by means of a recitation of a representative number of constructs, defined by polypeptide sequence, falling within the scope of the genus or of a recitation of structural features common to members of the genus, which features constitute a substantial portion of the genus. The instant specification fails to provide sufficient descriptive information, such as definitive structural and functional features of the claimed genus of constructs. There is no description of the conserved regions which are critical to the structure and function of the genus claimed. The specification proposes to discover other members of the genus by different ionic conditions and any conceivable protein falling in the broad description of a "heat shock protein". There is no description, however, of the sites at which variability may be tolerated and there is no information regarding the relation of structure to function. Structural features that could distinguish the compounds in the genus from others excluded are missing from the disclosure. The scope of the claims which encompasses all constructs that bind hsp (any hsp), and in claim 15 without any disclosed conditions, said constructs which may be incapable of inducing an immune response, are not enabled by the disclosure. For the person of ordinary skill in the art to screen for tethers to the broad genus of hsps encompassed by the claims, under a wide variety of binding conditions, generating constructs which may/may not induce an immune response would prevent the skilled artisan from practicing the invention in its full scope. Therefore, the lack of guidance provided in the specification as to what constructs would be useful in immuno-modulation, which

hsp would be interact with what protein or non protein, how to create hsp homologs expressed constitutively that would specifically isolate immunogenic constructs, the unpredictability of immuno-modulation would prevent the skilled artisan from practicing the invention in its full scope.

5. Claims 18, 28, 31, 33 and 35-91 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The instant specification does not contain a written description of the invention in such full, clear, concise, and exact terms or in sufficient detail that one skilled in the art can reasonably conclude that applicant had possession of the claimed invention at the time of filing.

The claims are drawn to use of conjugate peptide comprising a first portion which binds a heat shock protein and a second portion which is antigenic or use of conjugate peptide which comprises a benzoquinone ansamycin and an antigenic peptide.

The invention of instant application relates to conjugate peptides that bind to heat shock proteins and provoke an immune response. The specification discloses the buffer concentration and the presence and absence of herbimycin alter the peptides bound to gp96. There is no disclosure in the specification regarding provoking an immune response using conjugates isolated from gp96. Further disclosed is hp70/ova-BiP construct can induce an immune response

(Example 7). The instant disclosure of an hp70/ova-BiP construct that can induce immune response does not adequately describe the scope of the claimed genus, which encompasses a substantial variety of subgenera including constructs which encompass proteins/non-proteins which bind "heat shock protein" (including homologs thereof expressed constitutively, including, but not limited to gp96, hsp90, biP, hsp70, hsp60, hsp40, hsc70 and hsp10. The tether that binds the heat shock protein (hsp) is not defined by structure. The critical feature defining what sequences of polypeptide that will bind to the hsp and be effective as immuno-modulators are not disclosed. A description of a genus of conjugates may be achieved by means of a recitation of a representative number of constructs, defined by polypeptide sequence, falling within the scope of the genus or of a recitation of structural features common to members of the genus, which features constitute a substantial portion of the genus. *Regents of the University of California v. Eli Lilly & Co.*, 119 F3d 1559, 1569, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). The instant specification fails to provide sufficient descriptive information, such as definitive structural and functional features of the claimed genus of constructs. There is no description of the conserved regions which are critical to the structure and function of the genus claimed. The specification proposes to discover other members of the genus by different ionic conditions and any conceivable protein falling in the broad description of a "heat shock protein". There is no description, however, of the sites at which variability may be tolerated and there is no information regarding the relation of structure to

function. Structural features that could distinguish the compounds in the genus from others excluded are missing from the disclosure.

Since the disclosure fails to describe the common attributes or characteristics that identify members of the genus, and because the genus is highly variant, the disclosure of specific constructs and the ability to screen, is insufficient to describe the genus. One of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe and enable the genus as broadly claimed.

An adequate written description of a construct, such as a protein, "requires a precise definition, such as by structure, formula, chemical name, and physical properties," not a mere wish or plan for obtaining the claimed chemical invention. *Fiers v. Revel* , 984 F.2d 1164, 1171, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993).

Accordingly, the specification does not provide a written description of the conjugate peptides used in claims 18, 28, 31, 33 and 35-91.

8. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nirmal S. Basi whose telephone number is 571-272-0868. The examiner can normally be reached on 9:00 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony C. Caputa can be reached on 571272-0829. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nirmal S. Basi
Art Unit 1646
June 27, 2005

JOSEPH MURPHY
PATENT EXAMINER